

REMARKS

This Amendment is filed in response to the Office Action dated March 31, 2005, which has a shortened statutory period set to expire June 30, 2005.

Applicants Overcome 112 Rejections

Applicants appreciate the Examiner's close reading of the claims. Applicants have amended Claims 19, 26, 27, and 46. Specifically, Claims 19 and 46 now recite in part, "using a stepper simulation tool to determine flaws in said phase-shifted masks to be corrected". Claims 26 and 27 now recite in part, "manufacturing said phase-shifted mask for said compensation, said manufacturing being performed by a mask maker". Claim 27 also recites in part, "providing, by a facilitator on behalf of a party, a subsidy for production of a phase-shifted mask".

Applicants submit that Claims 19, 26, 27, and 46, as amended, particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Therefore, Applicants request reconsideration and withdrawal of the rejection of Claims 19, 26, 27, and 46 under 35 U.S.C. 112, second paragraph.

Applicants Claims Are Directed To Statutory Matter

Claim 1, as amended, recites, "manufacturing said phase-shifted masks for said compensation". Claim 28, as amended, recites, "manufacturing said masks using said particular technology for said compensation". Claim 53, as amended, recites, "manufacturing products for said compensation using said particular technology". Based on these amendments, Applicants request reconsideration and withdrawal of the rejection of Claims 1, 28, and 53 under 35 U.S.C. 101.

Claims 2-25 depend from Claim 1 and therefore are patentable for at least the reasons presented for Claim 1. Claims 29-52 depend from Claim 28 and therefore are patentable for at least the reasons presented for Claim 28. Claims 54-71 depend from Claim 53 and therefore are patentable for at least the reasons presented for Claim 53. Based on those reasons, Applicants also request reconsideration and withdrawal of the rejection of Claims 2-25, 29-52, and 54-71.

Claims 1-71 Are Patentable Over Dallmeyer

As taught by Applicants, various approaches can be used to make masks, where the more expensive mask design approaches tend to yield superior results. Specification, page 2, lines 9-10. A current technique for creating superior mask design involves phase-shifting. Specification, page 2, lines 10-11. Unfortunately, creating phase-shifted masks tends to be expensive. Specification, page 3, lines 4-5.

The nature of semiconductor manufacturing is that only a relatively low percentage of integrated circuits are market "hits". Specification, page 3, lines 6-7. Indeed, most integrated circuits make little or no profit, and frequently do not result in enough revenue to even cover the cost of manufacture. Specification, page 3, lines 7-9. Unfortunately, it is not possible to determine whether an integrated circuit is going to be profitable or not before the IC is commercially introduced. Specification, page 3, lines 16-17.

One way to minimize a loss associated with a potentially non-profitable IC is to forego the additional expense of using phase-shifting technology in its manufacture. Specification, page 3, lines 22-24. Consequently, phase-shifting technology may be under-utilized even though its adoption would, on

average, yield greater profits and better ICs. Specification, page 4, lines 7-9.

According to one claimed technique, a facilitator provides, on behalf of a set of one or more parties that desire masks, subsidies for production of phase-shifted masks. Specification, page 5, lines 3-4. The manufacture of the phase-shifted masks is paid using compensation that includes the subsidies from the facilitator. Specification, page 5, lines 4-6. One or more mask makers manufacture the phase-shifted masks for the compensation. Specification, page 5, lines 6-7.

The facilitator receives, from the set of one or more parties, compensation for the subsidies based on one or more factors including a factor that reflects market success of integrated circuits produced using the phase-shifted masks. Specification, page 5, lines 8-9. As a result of using this technique, the various participants in the semiconductor industry benefit financially and at the same time the adoption of superior manufacturing techniques, i.e. phase-shifting, is accelerated. Specification, page 5, lines 15-17. Applicants respectfully submit that Dallmeyer fails to teach this type of compensation, thereby allowing mask makers, the mask requesters, as well as the facilitator to benefit financially from using phase-shifting.

Claim 1 recites in part:

receiving, by said facilitator from said set of one or more parties, compensation for said subsidies based on one or more factors including a factor that reflects market success of integrated circuits produced using said phase-shifted masks.

Claim 26 recites in part:

receiving, by the facilitator from said party, compensation for said subsidy based on one or more factors including a factor that reflects market

success of integrated circuits produced using said phase-shifted mask.

Claim 27 recites in part:

receiving, by said facilitator from said set of one or more parties, compensation for said subsidies based on one or more factors including a factor that reflects market success of integrated circuits produced using said masks.

Claim 53 recites in part:

receiving, by said facilitator from said set of one or more parties, compensation for said subsidies based on one or more factors including a factor that reflects market success of said products.

Applicants respectfully submit that Dallmeyer fails to disclose or suggest these limitations.

The Office Action cites Dallmeyer at page 2, lines 44-46 (shown below) as teaching Claims 1, 26, 27, 28, and 53.

The same issues that arose in the Fujitsu-Fairchild case underlie the industry's proposal that the government subsidize Sematech, a new consortium intended to restore U.S. competitiveness by the early 1990s.

Applicants traverse this characterization. As taught by Dallmeyer at page 3, lines 57-60 (shown below):

Consortium members will supply money and staff to Sematech in exchange for access to the resulting manufacturing technology. To fund the venture, the SIA is seeking \$125 million annually from industry and a matching amount from the federal government, primarily DOD, for six years.

As further taught by Dallmeyer at page 4, lines 3-12 (shown below):

Although a high-volume production line is the best way to test manufacturing techniques and drive down costs, Sematech will combine a medium-scale plant with

elaborate software programs. These would give manufacturers the flexibility needed to produce complex and customized chips. The SIA rejected the option of having Sematech manufacture commercial quantities. The decision for small volume was reportedly a concession to obtain IBM's support of the project. IBM feared it would be pressured into buying Sematech's chips, even if other chips of better quality or lower cost were available. Chips coming off the production line will be used only in testing and quality control - none will be sold.

Therefore, the Sematech process is distinguished from Applicants' recited invention. Because Dallmeyer fails to disclose or suggest receiving, by said facilitator from the party/parties, compensation for the subsidies based on one or more factors including a factor that reflects market success of integrated circuits produced using said masks, Applicants request reconsideration and withdrawal of the rejection of Claims 1, 26, 27, and 53.

Claims 2-25 depend from Claim 1 and therefore are patentable for at least the reasons presented for Claim 1. Claims 29-52 depend from Claim 28 and therefore are patentable for at least the reasons presented for Claim 28. Claims 54-71 depend from Claim 53 and therefore are patentable for at least the reasons presented for Claim 53. Based on those reasons, Applicants request reconsideration and withdrawal of the rejection of Claims 2-25, 29-52, and 54-71.

Moreover, Claims 2, 29, and 54 recite in part:

the particular party agrees to compensate the facilitator for the subsidies based on a factor that reflects market success of each and every integrated circuit produced by or for said particular party based on any design in said defined population of designs.

Dallmeyer teaches nothing about the parties (e.g. members of the consortium) compensating the facilitator (e.g. the DOD),

much less compensating based on a factor reflecting the market success of the integrated circuits produced by or for the parties. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claims 2, 29, and 54.

Moreover, Claim 4 recites, "wherein the step of compensating the facilitator includes a party from said set of one or more parties paying the facilitator based on number of integrated circuits manufactured using a phase-shifted mask that was subsidized by the facilitator". Dallmeyer teaches nothing about a party (e.g. a consortium member) compensating the facilitator (e.g. the DOD) based on the number of ICs manufactured using a phase-shifted mask. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claim 4.

Moreover, Claim 5 recites, "wherein the step of compensating the facilitator includes a party from said set of one or more parties paying the facilitator for rental of a phase-shifted mask that was subsidized by the facilitator"; Claim 32 recites, "wherein the step of compensating the facilitator includes a party from said set of one or more parties paying the facilitator for rental of a mask that was subsidized by the facilitator"; and Claim 57 recites, "wherein the step of compensating the facilitator includes a party from said set of one or more parties paying the facilitator for rental of a product that was subsidized by the facilitator". Dallmeyer teaches nothing about a party (e.g. a consortium member) paying the facilitator (e.g. the DOD) for a rental of a phase-shifted mask/mask/product that was subsidized. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claims 5, 32, and 57.

Moreover, Claim 6 recites, "wherein the step of compensating the facilitator includes a party from said set of

one or more parties paying the facilitator based on revenues derived from integrated circuits manufactured using a phase-shifted mask that was subsidized by the facilitator"; Claim 33 recites, "wherein the step of compensating the facilitator includes a party from said set of one or more parties paying the facilitator based on revenues derived from integrated circuits manufactured using a mask that was subsidized by the facilitator"; and Claim 58 recites, "wherein the step of compensating the facilitator includes a party from said set of one or more parties paying the facilitator based on revenues derived from articles of manufacture manufactured using a product that was subsidized by the facilitator". Dallmeyer teaches nothing about a party (e.g. a consortium member) paying the facilitator (e.g. the DOD) based on revenues. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claims 6, 33, and 58.

Moreover, Claim 7 recites, "wherein the party pays the facilitator a per-unit amount that decreases with increased volume of sales of integrated circuits manufactured using said phase-shifted mask"; Claim 31 recites, "wherein the step of compensating the facilitator includes a party from said set of one or more parties paying the facilitator based on number of integrated circuits manufactured using a mask that was subsidized by the facilitator"; Claim 34 recites, "wherein the party pays the facilitator a per-unit amount that decreases with increased volume of sales of integrated circuits manufactured using said mask"; Claim 56 recites, "wherein the step of compensating the facilitator includes a party from said set of one or more parties paying the facilitator based on number of articles of manufacture manufactured using a product that was subsidized by the facilitator"; and Claim 59 recites, "wherein the party pays the facilitator a per-unit amount that decreases

with increased volume of sales of articles of manufacture manufactured using said product". Dallmeyer teaches nothing about a party (e.g. a consortium member) paying the facilitator (e.g. the DOD) based on a per-unit amount or based on the number of ICs/articles of manufacture. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claims 7, 31, 34, 56, and 59.

Moreover, Claims 19 and 46 recite, "the facilitator using a stepper simulation tool to determine flaws in said phase-shifted masks to be corrected". Dallmeyer teaches nothing about using a stepper simulation tool in this manner. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claims 19 and 46.

Moreover, Claim 20 recites, "the facilitator providing information about a particular phase-shifted mask acquired through the use of the stepper simulation tool to a semiconductor manufacturer; and the semiconductor manufacturer adjusting parameters on an actual stepper that is used with the particular phase-shifted mask based on the information". Claim 47 recites, "the facilitator providing information about a particular mask acquired through the use of the stepper simulation tool to a semiconductor manufacturer; and the semiconductor manufacturer adjusting parameters on an actual stepper that is used with the particular mask based on the information". Dallmeyer teaches nothing about using a stepper simulation tool in this manner and then adjusting parameters on the stepper. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claims 20 and 47.

Claims 23, 24, 50, and 51 recite, "wherein the compensation for said subsidies is based on the number of semiconductors

produced". Dallmeyer teach nothing about compensation for the subsidies based on the number of semiconductors produced. Therefore, Applicants request further reconsideration and withdrawal of the rejection of Claims 23, 24, 50, and 51.

CONCLUSION

Claims 1-71 are pending in the present application.
Allowance of these claims is respectfully requested.

If there are any questions, please telephone the
undersigned at 408-451-5907 to expedite prosecution of this
case.

Respectfully submitted,

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Date

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